



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,854	11/04/2003	Sung-Su Jung	8734,249.00 US	5752
30827 7590 02/06/2009 MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006				
EXAMINER				
LIN, JAMES				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
02/06/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/699,854

Applicant(s)

JUNG ET AL.

Examiner

Jimmy Lin

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/26/2008 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 14-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "the aligning substrate" in lines 6 and 15. There is insufficient antecedent basis for this limitation in the claim. For the purpose of this examination, the recitation will be interpreted to be at least inclusive of the aligning unit.

Claim 14 recites the limitation "the alignment unit" in lines 14 and 16. There is insufficient antecedent basis for this limitation in the claim. For the purpose of this examination, the recitation will be interpreted to be at least inclusive of the aligning unit.

Claim 15 recites the limitation "the alignment unit" in lines 17 and 19. There is insufficient antecedent basis for this limitation in the claim. For the purpose of this examination, the recitation will be interpreted to be at least inclusive of the aligning unit.

The recitation of "moving the table [in] the direction which the alignment unit is attached in the table" (claims 14 and 15) is unclear because the phrase "which the alignment unit is attached in the table" does not clearly describe a direction. It is indefinite as to whether the table is moved in the direction *along* which the unit is attached or in the direction from the side in which the unit is attached towards the opposing side of the table. For the purpose of this examination, the claims will be interpreted to be at least inclusive of both interpretations.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (hereafter, AAPA) in view of Onuma (JP 05-345160).

AAPA teaches that an aligning substrate can be used to adjust the gap between the substrate and a plurality of syringes when making a LCD. The height of the aligning substrate is the same as that of the substrate. The aligning substrate is loaded onto a table, and the syringes are lowered so that the nozzles just come into contact with the surface of the aligning substrate. The nozzles are raised to a predetermined height above the surface of the aligning substrate to thereby obtain a desired gap between the aligning substrate and the syringes. Then the aligning substrate is unloaded, a LCD substrate is loaded on the table, and a seal pattern is formed on the LCD substrate [0016]. The table can be moved in the left/right and forward/backward directions [0013]. AAPA teaches that an image camera can be used to detect the alignment patterns on the aligning substrate and that the position of the syringes is aligned according to the image [0016].

AAPA does not explicitly teach that the aligning substrate can be attached to a side surface of the table and that the table can be moved to position the syringe over the substrate from the aligning substrate to dispense the sealant. However, Onuma teaches a method of forming a desired gap prior to forming a sealant layer on a LCD substrate. An aligning substrate 6 is used to acquire the desired gap. The nozzle can contact the aligning substrate while the LCD substrate is loaded on the table. Onuma reasonably teaches the use of a fixed aligning substrate that is not required to be loaded/unloaded on the table. The teachings of AAPA and Onuma would have presented a recognition of equivalency in the prior art and would have presented strong evidence of obviousness in substituting one method for the other in a process of providing an alignment means. The substitution of equivalents requires no express suggestion. See MPEP 2144.06.II. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have provided a fixed aligning substrate in the method of AAPA with a reasonable expectation of success. Additionally, the selection of something based on its known

suitability for its intended use has been held to support a prima facie case of obviousness (MPEP 2144.07).

Onuma displays in Fig. 4 that the aligning substrate 6 is positioned close to a table on which the substrate 2 is placed, but does not explicitly teach that the aligning substrate is attached to a side surface of the table. However, the nozzle contacts the aligning substrate while the LCD substrate has been loaded onto the table, so the table must be moved so that the position of the nozzle can be moved from the aligning substrate to the LCD substrate. The distance that the table must move can be reduced as the aligning substrate is positioned closer to the table, thereby increasing productivity. Attaching the aligning substrate to the table would allow for the smallest distance between the nozzle and the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have attached the aligning substrate to the table in the method of Onuma with a reasonable expectation of success. One would have been motivated to do so in order to have increased productivity.

6. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Onuma '160 and Yamazaki et al. (U.S. Patent No. 6,175,395).

AAPA and Onuma are discussed above.

AAPA does not explicitly teach that the upper surface of the substrate is flat. However, AAPA does teach that sealant is formed over an orientation film. Accordingly, Yamazaki teaches that it well known to have formed an orientation film to be flat (col. 10, lines 18-20). Because Yamazaki teaches that such film formations were operable in the art, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the orientation film of AAPA to be flat with a reasonable expectation of success.

Claim 15: AAPA teaches that an image camera can be used to detect the alignment patterns on the aligning substrate and that the position of the syringes is aligned according to the image [0016].

Claim 16: AAPA does not explicitly teach cleaning the aligning substrate after the syringes are raised to have a desired gap between the aligning substrate and the nozzles. However, cleaning the aligning substrate would have extended the life and use of the aligning substrate. Thus, it would have been obvious to one of ordinary skill in the art at the time of

invention to have cleaned the aligning substrate. One would have been motivated to do so in order to have extended the lifetime of the aligning substrate and to have reduced production costs.

Claim 17: AAPA teaches that a sealant is dispensed [0015].

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Onuma '160 as applied to claim 14 above, in view of Liu (U.S. Publication No. 2002/0123210).

AAPA does not explicitly teach that the aligning substrate can be made of glass. However, Liu teachings that it was well known for a dummy substrate to be made of a variety of materials, including glass [0041]. Because Liu teaches that such materials of construction were operable for dummy substrates, it would have been obvious to one of ordinary skill in the art at the time of invention to have made the aligning substrate (i.e., dummy substrate) of AAPA from a glass material with a reasonable expectation of success.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Onuma '160 as applied to claim 14 above, and further in view of Hashimoto et al. (U.S. Publication No. 2001/0013920).

AAPA and Onuma are discussed above, but do not explicitly teach that the dispensing includes dispensing of a liquid crystal. However, Hashimoto teaches that dispensing liquid crystal from a syringe is well known in the art [0050]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have dispensed liquid crystals from the syringe of AAPA with a reasonable expectation of success because Hashimoto teaches that syringes are operable for dispensing such materials onto an LCD substrate.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Onuma '160 as applied to claim 10 above, and further in view of Hashimoto et al. (U.S. Publication No. 2003/0083203).

AAPA and Onuma are discussed above, but do not explicitly teach that silver is dispensed from the syringe. However, Hashimoto '203 teaches that conductive fine particles, such as silver, can be dropped onto an LCD substrate from a nozzle [0102]-[0104]. The silver is

dropped on the outer edges of the image display to prevent breaks and short circuits ([0191]-0195]; Fig. 8). AAPA teaches that materials can be deposited onto an LCD substrate by dropping the materials through the nozzle of a syringe. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have connected the upper and lower substrates of AAPA using the silver dots of Hashimoto '203 in order to have prevented breaks and short circuits. Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention to have dropped the silver dots onto the LCD substrate using the syringe of AAPA because AAPA teaches that such syringes have nozzles that are operable for dropping material onto an LCD substrate. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Response to Arguments

10. Applicant's arguments filed 7/1/2008 have been fully considered but they are not persuasive.

Applicant notes on pg. 6-7 that the previous Office Action stated that the dummy substrate of AAPA correlates to the claimed alignment substrate, and argues that there is no correlation because the dummy substrate of AAPA is not attached to the table. However, the dummy substrate performs the same function as the claimed aligning unit except that the dummy substrate is not attached to the table as claimed. Onuma is used to teach this deficiency. The aligning unit of Onuma performs a similar function to the dummy substrate of AAPA. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness (MPEP 2144.07). The substitution of equivalents requires no express suggestion (MPEP 2144.06.II.). Thus, the use of the method of Onuma in the method of AAPA would have been obvious.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is (571)272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jimmy Lin/
Examiner, Art Unit 1792

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1792